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ABSTRACT

Procedures and results of an evaluation of the Choctaw Bilingual/English as a Second Language (ESL) Program, conducted in east central Mississippi, are discussed. The program, which is in its fifth year, is implemented using Title VII funds in three of the six Bureau of Indian Affairs elementary schools on the Mississippi Choctaw Reservation. The Bilingual/ESL program focuses on increasing students' proficiency in English in a manner that does not devalue Choctaw language or culture. It involves formal classroom instruction and parent training. A major component involves the training of instructional personnel in ESL instructional methods. The means used to evaluate the project was the gap-reduction design advocated by G. K. Tallmadge et al. During the evaluation, the program served 139 students enrolled in kindergarten through grade 3. All students were dominant Choctaw speakers with limited English proficiency. A comparison group of 194 non-ESL students in kindergarten through grade 4 was used. Students in both groups were administered the California Achievement Test (CAT) in April of 1987 and 1988. The unit of analysis was the standard score for the reading, language, and total battery. Results indicate that the students in the program made greater gains in all three batteries of the CAT than did non-ESL students. It is concluded that the program has been sufficiently effective to recommend its adoption by the entire school system. In addition, the gap-reduction method of program evaluation has proven to be an efficient and effective method of evaluating supplemental educational programs. Nine data tables and five graphs are presented. (TJH)

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USING THE GAP REDUCTION MODEL TO EVALUATE A SUCCESSFUL BILINGUAL/ESL PROGRAM

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INTRODUCTION

The primary goal of the Choctaw Bilingual/ESL Program has been to achieve greater proficiency with English in a manner which does not devalue Choctaw language and culture, with the operating principal that English proficiency is a necessary competency for successful living among a majority society whose language is not Choctaw. This paper uses a summative evaluation to demonstrate that this goal has been accomplished for students receiving assistance from the Bilingual/ESL program.

The success of this program can be attributed, in part, to the instructional method used by the ESL specialists and, in part, by the support the program received from the local communities. The Bilingual/ESL model operated in a traditional "pull-out" mode with students coming to an ESL resource room for instruction on a daily basis. ESL instruction is comprised of, among other things, a set of rational activities coordinated around a curriculum which was developed specifically for the Choctaw children. The instructional methods used have been designed to enhance the English language proficiency of the students through:

(1) providing intensive training in the phonology, morphology, and syntax of English language; and,

(2) sequencing instructional materials to provide students with incremental learning of English language skills so that students can begin to immediately use their new skills in the classroom.

PROGRAM OVERVIEW

The Choctaw Bilingual Education Program has completed its fifth year of successful implementation with Title VII - Bilingual Education support. The program was designed and has operated under the guidance of community and parental support structures, with a major focus on ESL instruction and home/school training designed to increase parental proficiency in English reinforcement within the child's home setting.

The program operated in three of the six Bureau of Indian Affairs elementary schools on the Mississippi Choctaw Reservation in rural, east central Mississippi (Standing Pine, Red Water, and Tucker) and served a total of 139 K-3 Choctaw students, all of whom were dominant Choctaw speakers with limited English proficiency.

Total student enrollment for all six schools within the Bureau of Indian Affairs school system is close to 1,200. Total BIA student enrollment by school and by grade level for the Spring of 1987 is presented in Table I. Table II presents the number of students served by the Choctaw Bilingual/ESL Education Program.

DESCRIPTION OF ESL INSTRUCTION

Consistent with parent and tribal preference, the focus of this program was ESL instruction and training to increase proficiency in English language. This was accomplished in two ways:

(1) In the formal classroom; and,
(2) Parent training.

Classroom instruction in the Choctaw Bilingual/ESL Education Program was operated in the classical pull-out model. Students came for ESL instruction on a daily basis, with classroom teachers and parents scheduled for periodic observation. Tutorial time was scheduled for individualized instruction with each child according to need as determined by the ESL specialists and aides. Computer assisted instruction for English language learning was also used in the ESL classroom as an instructional tool.

Instruction in the ESL classroom was organized around the ESL curriculum which was designed specifically for this special population. The ESL curriculum and the scope and sequence was carefully coordinated with the current school curriculum and was designed to supplement existing classroom objectives.

The Choctaw Bilingual/ESL Education Program was designed to have maximum impact upon the daily classroom activities in the three schools served. Not only was there daily ESL instruction provided for all project participants, but the staff members were also involved in the collection of bilingual or ESL materials appropriate for use with Choctaw students in the content areas of reading, writing, math, science, language arts, and cultural activities and stories.

A major component of the program was to train instructional personnel within the three schools in ESL instructional methodology and in the use of bilingual/ESL materials in the classroom. This was a major component for two important reasons: (1) with sufficient training, the regular classroom teachers will be able to continue the program emphasis after support for Title VII has

ended; and, (2) as the regular classroom teachers gain an understanding of ESL instructional techniques, they will be able to carry their understanding of bilingualism and of second language learning over into all subject areas of instruction. Consequently, the Choctaw school system can be assured that program instruction is a part of all subjects of study needed to allow a child to meet the standards set for grade promotion.

As indicated earlier, the Choctaw Bilingual/ESL Education Program was designed to solicit the support and guidance of community and parental support structures. Subsequently, a major focus of ESL instruction and home/school training was designed to increase parental proficiency in English reinforcement within the child's home setting. Parents received training in the use of language expansion and language reinforcement exercises by attending training sessions directed by the ESL specialists. Further parent training was conducted by the home/school aides as they visited in the homes. Parents were encouraged to observe the ESL classroom and discuss the progress of their children with the ESL Specialists and classroom teachers.

METHOD OF EVALUATION

One of the primary goals of the project was to improve the student's usage of the English language thus improve his/her academic achievement. The means used to evaluate the success of the project was the Gap-Reduction Design advocated by Tallmadge, Lam, and Gamel (1987a). The premise of this design is that students in need of bilingual services would score below their mainstream peers on a standardized achievement test and continue to stay behind or even fall further behind unless they received additional services. The gap reduction model was used to measure the relative growth of students participating in the Bilingual/ESL Education Program as compared to students not participating in the program.

DESCRIPTION OF POPULATION

A comparison group of non-LEP students was not available for use; however, a group of comparable students was selected to serve as a control group. This group included Choctaw students attending three Bureau Of Indian Affairs schools not served by the Bilingual/ESL program. These students were similar to the students attending the three BIA schools that received Bilingual/ESL services in several ways. Students in both groups had Choctaw as their first language and English as their second language; both groups resided on the Choctaw Indian Reservation; both groups received similar classroom instruction; both groups were operated under one central administration, directed by one school board; and the Social Economic Status of both groups were similar. (Fortune, 1981)

In this study, the comparison group (referred to as the non-ESL group) consisted of 194 students in kindergarten through fourth grade attending the

following BIA schools: Bogue Chitto, Choctaw Central, and Conehatta. The treatment group consisted of kindergarten through fourth grade students attending the remaining BIA schools: Red Water, Standing Pine and Tucker.

Students in both groups were administered the appropriate level of the California Achievement Test in April of 1987 and 1988. The unit of analysis was the standard score (SS) for the reading, language, and total battery.

CALCULATING THE GAP REDUCTION

According to Tallmadge, Lam, and Gamel (1987 b), the gap reductions are calculated as follows: "The pretest gap is the comparison group's mean pretest score minus the project group's mean pretest score divided by the comparison group's pretest standard deviation. The posttest gap is the comparison group's mean posttest score minus the project group's mean posttest score divided by the comparison group's posttest standard deviation. The gap reduction is the pretest gap minus the posttest gap". The unit of analysis is the relative growth index (RGI) which is the " ... project group's growth minus the comparison group's growth divided by the comparison group's growth and multiplied by 100". The descriptive statistics necessary to carry out the gap reduction calculations for this study are presented in Table III through IX.

RESULTS

The results of the evaluation, using the gap-reduction model, indicate that the students in the Choctaw Bilingual/ESL Education Program made greater gains in all three batteries of the California Achievement Test (CAT) than the students not receiving ESL instruction. The mean

standard scores from the Reading and Language sub-test and the total score from the California Achievement Test were used for this evaluation. The measure of program success was indicated by the fact that students participating in the Bilingual/ESL program showed greater growth over time as compared to students not participating in the program. Comparisons between the two groups were made using three standard procedures: student growth using mean standard scores, gap reduction and relative growth index.

Mean Standard Scores

Standard scores from the CAT in reading and language subtests and the total battery were used to measure average student achievement growth from spring 1987 to spring 1988. These results are reported in Tables VII, VIII, and IX and in Figures 1 through 5. Growth in average standard scores of students in the Bilingual/ESL program were greater for all grades than average standard scores of students not in the program. Figure 1 plots the standard scores for first grade students in reading. The average standard score growth for first grade students in the program was 178.4 while the growth for first grade students not in the program was 33.5. Thus, the growth in average standard scores for first grade students in the Bilingual/ESL program was greater than the average standard scores in reading for students not in the program (Non-ESL).

A similar pattern was seen for second and third grade students in reading. (See Figures 2 and 3) The average standard score growth for second grade students in the program was 273.5 while the average standard score growth for second grade students not in the program (Non-ESL) was 146. For third grade students, the average standard score growth for

students in the program was 283.2 while the average standard score growth for students not in the program was 88.6.

Scores for the language battery and the total battery were not available for first and second grades however, for third grade students the average standard score growth for students in the program exceeded the average standard score growth for students not in the program in both batteries. (See Figures 4 and 5) The average standard score growth in language and the total ^M battery for third grade students in the program were 266.2 and 271.1 respectively. The average standard score growth for students not in the program was 56.3 and 66.9.

In short, the average standard score growth of students in the Bilingual/ESL was greater than the average standard score growth of students not in the program in all grades and in all subtests that were available.

Gap Reduction

The gap reduction as a measure of program effectiveness assumes that the program helps students close the gap between their performance and the performance of the mainstream students. The results from the same CAT test used in the earlier comparisons were calculated and reported in Tables VII, VIII, and IX. Using the mean standard score for the total reading battery of the California Achievement Test, students in the first grade advanced at a rate of 1.8 times faster than students not in the program. Second grade students advanced .25 times faster and third grade students advanced 3.3 times faster than the comparison students. Using the total language scores, third grade students in the program advanced 4.3 as

fast as students not in the program and, using the total battery scores, the same students in the program advanced 4.4 times faster than students not in the program.

In sum, students in the Bilingual/ESL program advanced faster than their counterparts in all grades and on all three test batteries. Their rate of progress ranged from .25 to 4.4 times as fast as the rate of progress of students not in the program.

Relative Growth Index

The relative growth index (RGI) expresses, in percentage terms, the amount by which the progress of students in the program exceeded the progress of students in the comparison group. Using the mean standard score for reading, the progress of first grade students in the Bilingual/ESL program was 432% larger than that of the comparison group. Second grade students' progress was 87% larger and third grade students' progress was 220% larger. Using the mean standard score for language, progress of third grade students in the program was 373% larger than students not in the program. Using the mean standard score for the total California Achievement Test, the progress of third grade students in the program was 305% larger than the progress of students not in the program.

In short, the progress of students in the Bilingual/ESL program at all grade levels and in all tested areas was from 87% to 423% larger than students not in the program.

CONCLUSIONS OF THE STUDY

Evaluating the Choctaw Bilingual/ESL Program using the gap reduction model results in positive conclusions. First, second, and third grade students that participated in the program showed greater gain in California Achievement Test in reading than students that did not participate in the program on all three measures: e.g. Mean Standard Score Growth; Gap Reduction; and RGI. Further, second and third grade students in the program out performed students not in the program as measured by the CAT language and total battery. The conclusion of this evaluation is that the particular instructional model used in the Choctaw Bilingual/ESL Education Program has been sufficiently effective to recommend its adoption by the entire school system. In addition, the gap reduction method of program evaluation has proven to be an efficient and effective method of evaluating supplemental educational programs.

TABLE I
STUDENT ENROLLMENT
by Grade and School

Grade Level	Bogue Chitto	Pearl River	Red Water	Tucker	Standing Pine	Conehatta
K	18	40	18	16	9	20
1	25	50	14	11	5	22
2	15	36	10	14	8	19
3	17	36	11	11	6	21
4	13	52	14	13	9	20
5	17	38	10	11	8	14
6	16	28	10	14	5	16
7	16	36	7	14	8	9
8	12	47	7		9	17
9		77				
10		44				
11		42				
12		31				
TOTAL	149	557	101	104	67	158

TABLE II
Choctaw Bilingual/ESL Program
Enrollment by Grade Level and School

Grade Level	Red Water School	Standing Pine School	Tucker School	Total
K	12	6	15	33
1	17	5	20	42
2	11	10	8	29
3	15	5	15	35
Total	55	26	58	139

TABLE III
Pretest Standard Scores For Choctaw Students
Not In The Bilingual/ESL Program
Spring, 1987

Grade Level	N	Total Reading Mean	Total Reading SD	Total Language Mean	Total Language SD	Total Battery Mean	Total Battery SD
K	59	439.9	77.5	N/A	N/A	N/A	N/A
1	89	411.5	84.4	N/A	N/A	N/A	N/A
2	69	520.5	59.4	562.1	46.1	558.4	46.5
3	66	596.4	63.8	605.6	54.8	614.1	51.4

TABLE IV
Pretest Standard Scores For Choctaw Students
In The Bilingual/ESL Program
Spring, 1987

Grade Level	N	Total Reading Mean	Total Reading SD	Total Language Mean	Total Language SD	Total Battery Mean	Total Battery SD
K	35	307.5	183.9	N/A	N/A	N/A	N/A
1	63	297.8	233.5	N/A	N/A	N/A	N/A
2	63	343.8	268.9	358.3	277.0	353.2	274.1
3	50	350.5	288.9	358.3	295.8	356.7	293.9

TABLE V
Posttest Standard Scores For Choctaw Students
Not In The Bilingual/ESL Program
Spring, 1988

Grade Level	N	Total Reading Mean	Total Reading SD	Total Language Mean	Total Language SD	Total Battery Mean	Total Battery SD
1	56	473.4	94.2	N/A	N/A	N/A	N/A
2	85	557.5	65.4	591.5	50.3	588.5	55.8
3	57	609.1	51.7	618.4	44.9	625.3	41.8

TABLE VI
Posttest Standard Scores For Choctaw Students
In The Bilingual/ESL Program
Spring, 1988

Grade Level	N	Total Reading Mean	Total Reading SD	Total Language Mean	Total Language SD	Total Battery Mean	Total Battery SD
1	24	485.9	49.5	N/A	N/A	N/A	N/A
2	35	571.3	59.5	594.8	53.2	587.3	51.3
3	33	627.0	83.4	624.5	65.6	624.3	69.8

TABLE VII
Relative Growth Index And Gap Reductions
For CAT Total Reading Battery

Grade Level	Gap Reductions	Project Growth In SS	Comparison Growth In SS	RGI
1	1.84	178.4	33.5	432%
2	.25	273.5	146.0	87%
3	3.30	283.2	88.6	220%

TABLE VIII
Relative Growth Index And Gap Reductions
For CAT Total Language Battery

Grade Level	Gap Reductions	Project Growth In SS	Comparison Growth In SS	RGI
3	4.28	266.2	56.3	373%

TABLE IX
Relative Growth Index And Gap Reductions
For CAT Total Battery

Grade Level	Gap Reductions	Project Growth In SS	Comparison Growth In SS	RGI
3	4.39	271.1	66.9	305%

Figure 1

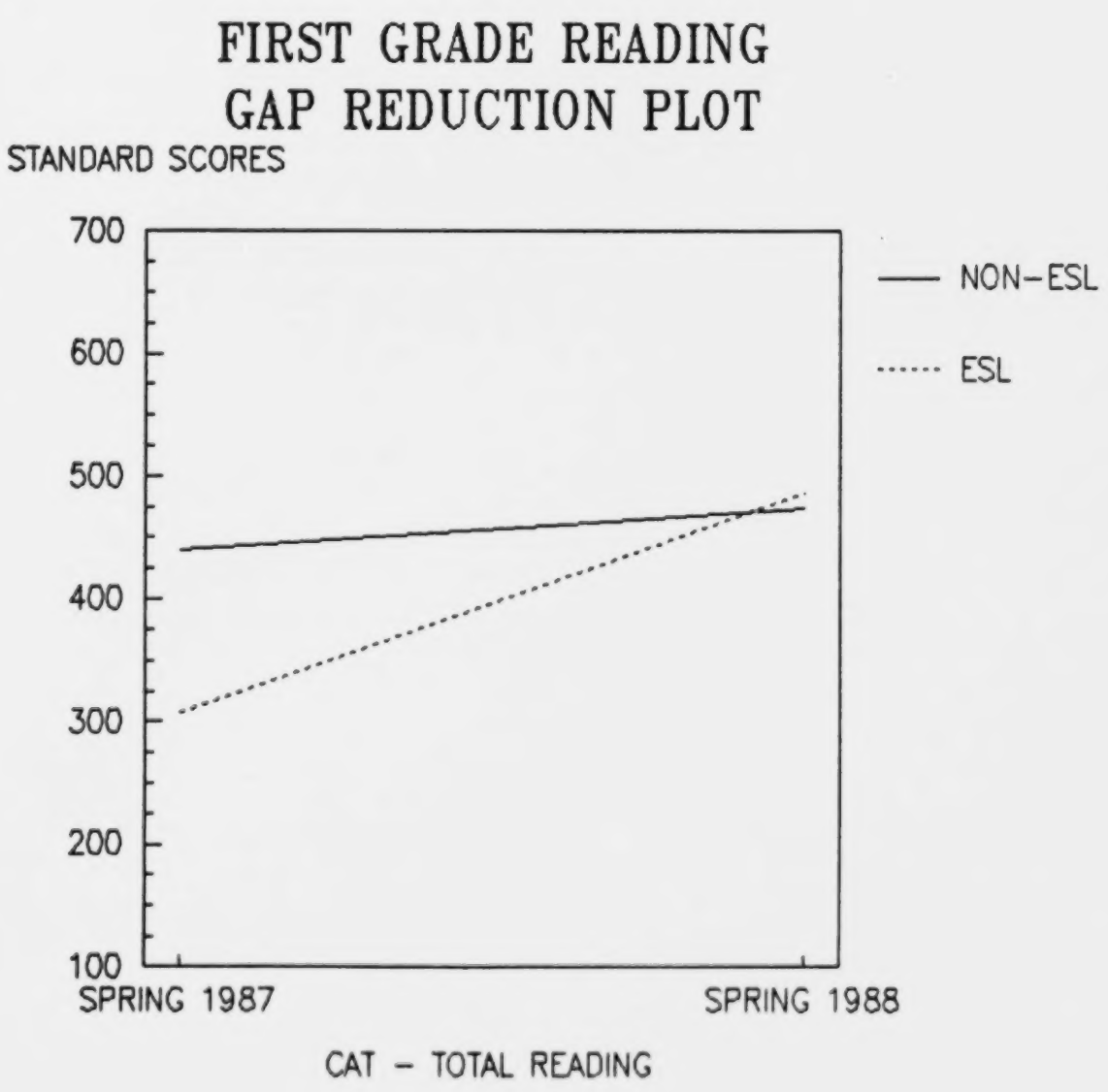

FIRST GRADE READING
GAP REDUCTION PLOT
STANDARD SCORES
700
600
500
400
300
200
100
SPRING 1987
SPRING 1988
NON-ESL
ESL
CAT - TOTAL READING

Figure 2

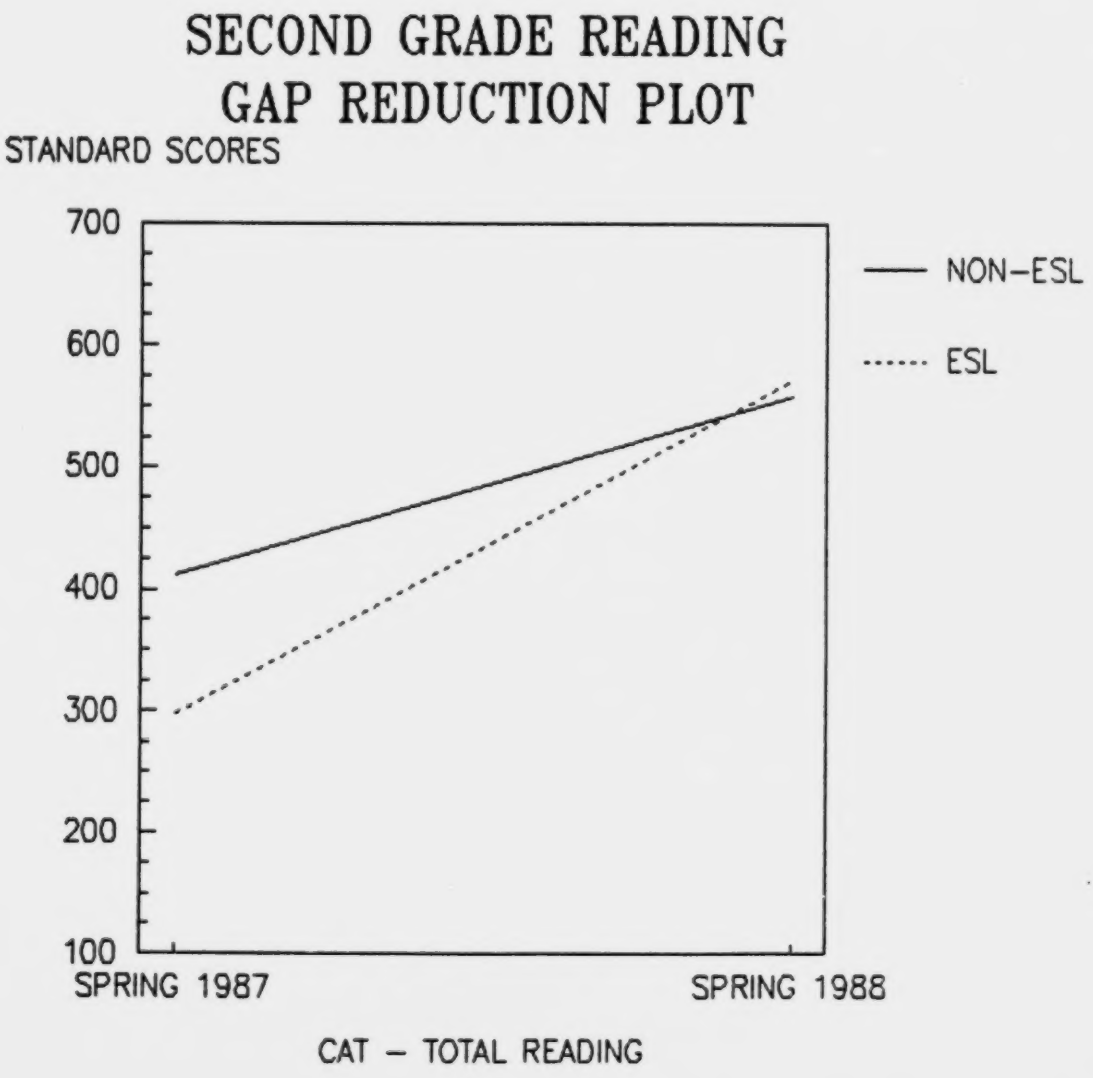

SECOND GRADE READING
GAP REDUCTION PLOT
STANDARD SCORES
700
600
500
400
300
200
100
SPRING 1987
SPRING 1988
NON-ESL
ESL
CAT – TOTAL READING

Figure 3

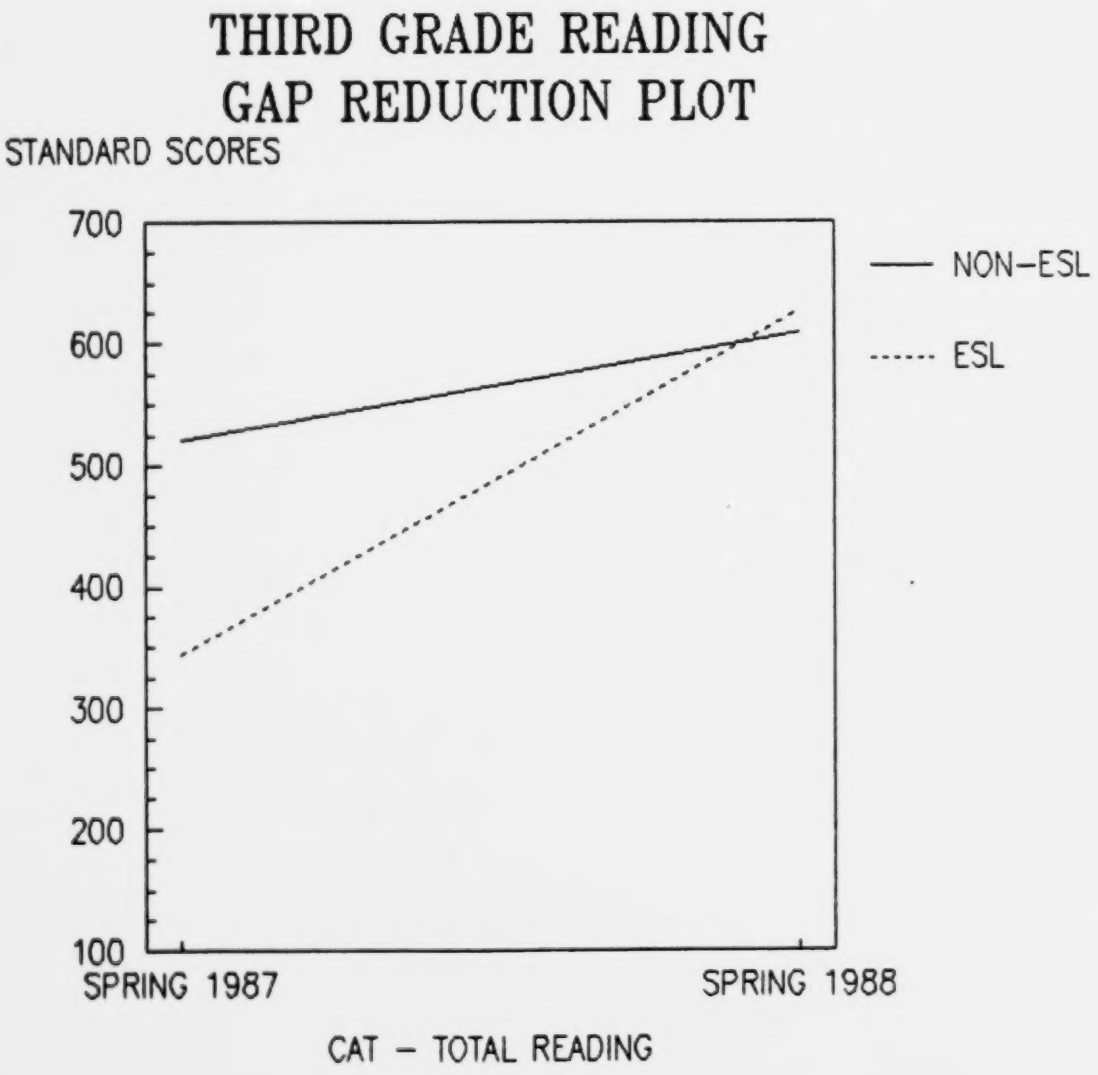

THIRD GRADE READING
GAP REDUCTION PLOT
STANDARD SCORES
700
600
500
400
300
200
100
SPRING 1987
SPRING 1988
NON-ESL
ESL
CAT – TOTAL READING

Figure 4

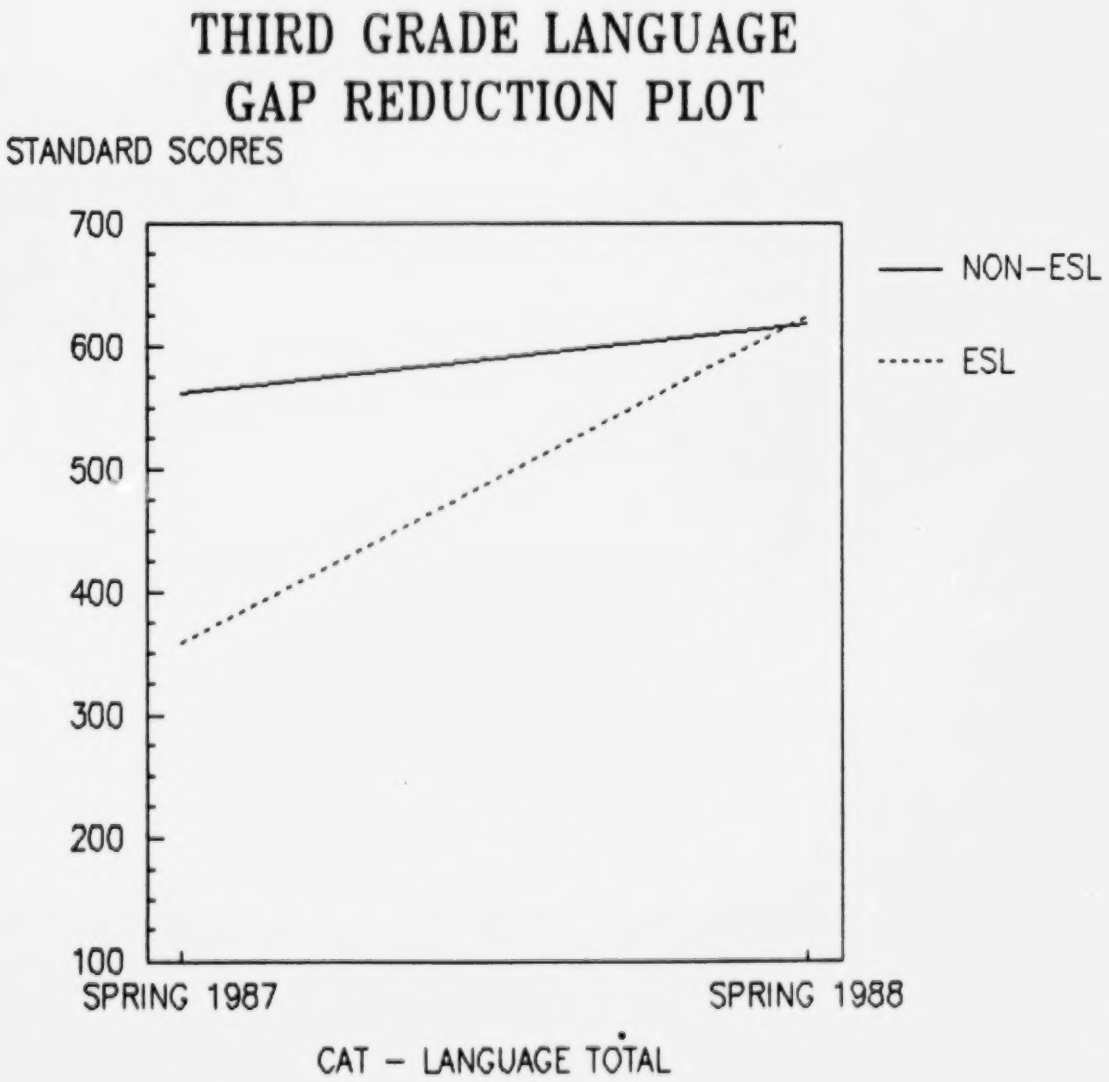
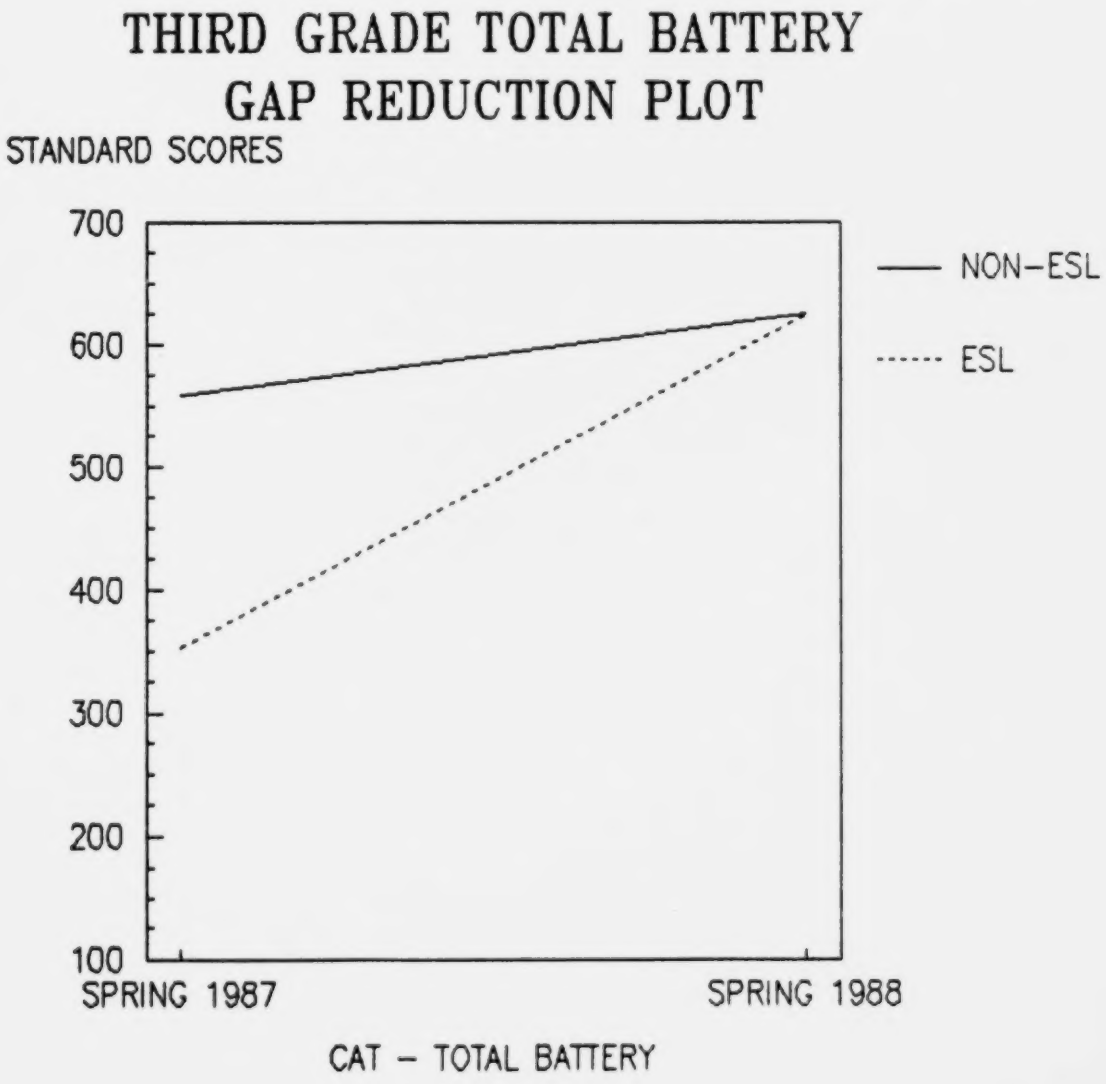

THIRD GRADE LANGUAGE
GAP REDUCTION PLOT
STANDARD SCORES
700
600
500
400
300
200
100
SPRING 1987
SPRING 1988
NON-ESL
ESL
CAT - LANGUAGE TOTAL

Figure 5


THIRD GRADE TOTAL BATTERY
GAP REDUCTION PLOT
STANDARD SCORES
700
600
500
400
300
200
100
SPRING 1987
SPRING 1988
NON-ESL
ESL
CAT - TOTAL BATTERY

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